

Remarks/Arguments

Claims 19, 21-25 and 29-40 are pending in this application. Claims 19, 21 and 22 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 5,972,192 ("Dubin") in view of the Condensed Chemical Dictionary and either of U.S. Patent No. 4,563,399 ("Wright") or U.S. Patent No. 4,461,680 ("Lashmore"). Claims 25 and 29-35 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite for failing to point out and distinctly claim the subject matter that Applicants regard as their invention. Moreover, claims 19, 21-25 and 29-39 were provisionally rejected under the judicially-created doctrine of double patenting as being allegedly unpatentable over claims 1-22 of co-pending U.S. Patent Application No. 09/796,856. These rejections are respectfully traversed, in part, for reasons including those set forth below. However, claims 19, 23, 25 and 34 have been amended, and claim 40 has been added, to clarify further the subject matter regarded as the invention and to expedite the prosecution of this application.

Rejections Under 35 U.S.C. Section 103(a); New Claim 40

The rejections under 35 U.S.C. Section 103(a) of claims 19, 21 and 22 are respectfully traversed. The Lashmore and Wright patents, as understood, do not concern deposition on a "metal seed layer" as the term is used in the art and in the pending application. For example, the present application includes the following discussion of seed layer deposition:

Referring to FIGS. 1 and 2, a seed layer 20 is typically formed over the entire substrate 10. Seed layer 20 is typically a conductive layer overlaying a barrier. The conductive layer is typically a sputtered (PVD) copper film although other conductors and other methods of deposition (such as CVD, PECVD, etc.) are not excluded. The barrier layers are typically Ta, TaN, Ti, TiN. The function of the seed layer is to allow electrical current to be distributed across substrate 10 thereby facilitating electroplating.

(Specification at p.5, lines 20-26.)

As noted in the foregoing paragraph, a seed layer is generally applied *prior to* an electroplating process, not as part of an electroplating process. As understood, the Lashmore and Wright patents do not involve the deposition of a seed layer or electroplating on a seed layer. Moreover, neither Lashmore nor Wright concerns electroplating with copper. Therefore, in order to clarify further the subject matter regarded as the invention, claim 19 has been amended to recite “the metal seed layer being formed at least in part from copper.” This amendment is supported, for example, by the section of the specification quoted above and by page 18, lines 19-21. It is respectfully submitted that this amendment overcomes the rejections stated in the Office Action under 35 U.S.C. § 103(a).

In order to clarify further the distinction of the metal seed layer, new claim 40 recites “[t]he method of claim 19, wherein the metal seed layer is formed by a vapor deposition process.” Claim 40 is supported, for example, by the section of the specification quoted above.

Rejections Under 35 U.S.C. Section 112

Claim 25 has been amended in accordance with the suggested amendments indicated in Paragraph 12 of the Office Action.

Provisional Nonstatutory Double Patenting Rejection

Applicants’ attorney has submitted a Terminal Disclaimer in response to the provisional double patenting rejection stated in the Office Action.

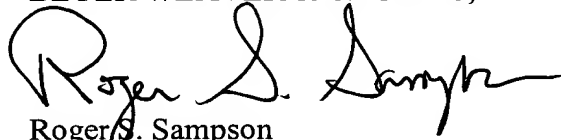
Conclusion

Applicants’ attorney respectfully submits that all pending claims are allowable over the art relied upon in the Office Action. The amendments to claims 25 and 34 overcome the Office Action’s rejections under 35 U.S.C. § 112. Moreover, the enclosed Terminal Disclaimer overcomes the provisional double patenting rejection stated in the Office Action. Therefore, Applicants’ attorney respectfully requests a Notice of Allowance for this application from the Examiner.

Applicants' attorney has been informed by the research attorney associated with Petitions that no fees for extension of time are necessary, because such fees are subsumed by the fee paid for the attached Petition to Revive. However, in the event that the Patent and Trademark Office changes its position on this issue, Applicants hereby petition for any extension of time that may be required to re-establish the pendency of this case. Any required fee for such extension, or any further fee required in connection with the filing of this Amendment, is to be charged to Deposit Account No. 500388 (Order No. NOVLP081D1).

Respectfully submitted,

BEYER WEAVER & THOMAS, LLP

A handwritten signature in black ink, appearing to read "Roger S. Sampson", written over the printed name.

Roger S. Sampson
Reg. No. 44,314

P.O. Box 778
Berkeley, CA 94704-0778
510-843-6200